

Claims

1. A slow release formulation including a biocompatible anionic polysaccharide material containing glucuronic acid in the polymer chain.
2. A formulation as claimed in claim 1 wherein at least 5% of the basic structural units are glucuronic acid.
3. A composition as claimed in claim 1 wherein the polysaccharide material is polyanhydroglucuronic acid, biocompatible salts thereof, copolymers thereof, or a biocompatible intermolecular complex thereof.
4. A composition as claimed in claim 3 wherein the biocompatible intermolecular polymer complex is a complex of:

an anionic component comprising a linear or branched polysaccharide chain containing glucuronic acid; and

a non protein cationic component comprising a linear or branched natural, semi-synthetic or synthetic oligomer or polymer.
5. A composition as claimed in claim 4 wherein at least 5% of the basic structural units of the anionic component are glucuronic acid.
6. A composition as claimed in claim 4 wherein the cationic component contains nitrogen that either carries a positive charge or wherein the positive charge is induced by contact with the polysaccharidic anionic component.

7. A composition as claimed in claim 6 wherein the cationic component is selected from derivatives of acrylamide, methacrylamide and copolymers thereof.
8. A complex as claimed in claim 7 wherein the cationic component is selected from polyacrylamide, copolymer of hydroxyethylmethacrylate and hydroxypropylmetacrylamide, copolymers of acrylamide, butylacrylate, maleinanhydride and/or methylmetacrylate.
9. A composition as claimed in claim 4 wherein the cationic component is a cationised natural polysaccharide, preferably the polysaccharide is a starch, cellulose or gum such as guargumhydroxypropyltriammonium chloride.
10. A complex as claimed in claim 4 wherein the cationic component is a synthetic or semi-synthetic polyamino acid, preferably the cationic component is polylysin, polyarginin, or α , β -poly-[N-(2-hydroxyethyl)-DL-aspartamide].
11. A complex as claimed in claim 4 wherein the cationic component is a synthetic anti-fibrinolytic, preferably the anti-fibrinolytic is a hexadimethrindibromide (polybren).
12. A composition as claimed in claim 4 wherein the cationic component is a natural or semi-synthetic peptide, preferably the peptide is a protamine, gelatine fibrinopeptide, or derivatives thereof.
13. A composition as claimed in claim 4 wherein the cationic component is an aminoglucane or derivatives thereof, preferably the aminoglucane is fractionated chitin or its de-acetylated derivative chitosan, preferably the aminoglucane is of microbial origin or is isolated from the shells of arthropods such as crabs.

14. A composition as claimed in claim 4 wherein the anionic component is polyanhydroglucuronic acid and/or bicompatible salts and/or copolymers thereof.
15. A composition as claimed in claim 3 wherein the polyanhydroglucuronic acid and salts thereof contain in their polymeric chain from 8 to 30 percent by weight of carboxyl groups, at least 80 percent by weight of these groups being of the uronic type, at most 5 percent by weight of carbonyl groups, and at most 0.5 percent by weight of bound nitrogen.
16. A composition as claimed in claim 15 wherein the polyanhydroglucuronic acid and salts thereof contain in their polymeric chain at most 0.2 percent by weight of bound nitrogen.
17. A composition as claimed in claim 15 wherein the molecular mass of the polymeric chain of the anionic component is from 1×10^3 to 3×10^5 Daltons, preferably from 5×10^3 to 1.5×10^5 Daltons.
18. A composition as claimed in claim 15 wherein the content of carboxyl groups is in the range of from 12 to 26 percent by weight, at least 95 percent of these groups being of the uronic type.
19. A composition as claimed in claim 15 wherein the anionic component contains at most 1 percent by weight of carbonyl groups.
20. A composition as claimed in claim 15 wherein the carbonyl groups are intra- and intermolecular 2,6 and 3,6 hemiacetals, 2,4-hemialdals and C2-C3 aldehydes.

21. A composition as claimed in claim 4 wherein the cationic component is gelatine.
22. A composition as claimed in claim 4 wherein the cationic component is chitosan.
23. A composition as claimed in claim 1 including at least one biocompatible biologically active substance.
24. A composition as claimed in claim 1 including at least one biologically acceptable adjuvant.
25. A composition as claimed in claim 1 in a form for oral administration.
26. A composition as claimed in claim 1 in the form of a tablet, pellet, capsule, granule, or microsphere.